Remarks

Claims 81-93 and 96-124 remain in this application

The Instant Invention – An Overview

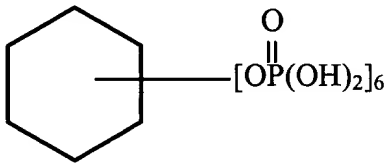
This invention is directed to a method for preparing a soy protein material wherein ribonucleic acids in the soy protein have been degraded by use of an enzyme. The soy protein is then washed to remove the degraded ribonucleic acids.

The Rejections

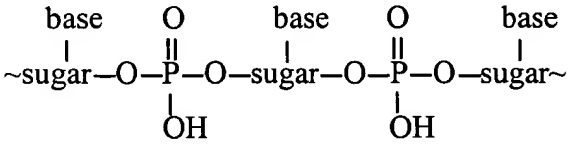
Claims 81-93 and 96-124 are rejected under 35 USC §102(b) as anticipated by, or in the alternative under 35 USC §103(a) as obvious over EP 0 380 343 (EP '343).

It is the opinion of the Patent Office that while EP '343 does not disclose ribonucleic acids, or to a use of an enzyme to degrade them that nevertheless RNAs would be degraded simply because RNAs contain phosphorus groups and the EP '343 use phosphatase enzyme. In EP '343 phosphatase enzymes are used to reduce or eliminate phytates in soy proteins. Phytates are phytic acid or the calcium, magnesium and potassium salts of phytic acid, the latter of which are called phytin.

Phytic acid is represented by the below structure and has a molecular weight of 660.



Ribonucleic acid is a polynucleotide chain of ribose, phosphoric acid and organic bases of purines (adenine and guanine) and pyrimidines (cytosine and uracil). A representation of RNA is below.



RNA like DNA is a long unbranched macromolecule consisting of nucleotides joined by 3'- 5' phosphodiester bonds. The number of nucleotides in RNA varies from 75 to thousands. RNA has a hydroxyl group at C-2 of ribose that is not present in DNA. DNA is capable of forming a double stranded molecule. Because of the extra hydroxyl group in RNA, RNA is too bulky to form a double stranded molecule. While RNA is single stranded, parts of it can bend and form loops where the bases can pair up with each other. Further, the positions of the bases are stabilized by hydrogen bonding.

RNA is thus a very large and bulky molecule whereas phytic acid is not. Phytase enzyme is able to easily react with phytic acid to degrade phytic acid. Because of hydrogen bonding and steric hindrance, one would not expect phytase to degrade RNA. One would not look to non-analogous art (EP '343) to solve the problem of degrading RNA as per the instant invention.

RNAs and phytic acid both contain phosphorous groups. However, one skilled in the art would not utilize the teachings of EP '343 of enzymes and phytic acid to arrive at the present invention of enzymes RNAs. Phosphorous groups aside, phytic acid and RNAs are very different chemical entities. Chemistry is largely empirical and therefore there is often great difficulty in predicting how a given compound will behave. *In re Carleton* (CCPA 1979) 599 F2d 1021, 202 USPQ 165. Further, because chemistry is often an empirical science, it is easy to characterize inventions in the field of chemistry as the result of "routine testing". But even "routine testing "must be guided and directed by the mental concept of the inventor. "Routine experimentation" does not negate patentability. 35 USC 103, last sentence; *In re Fay et al.* (CCPA 1965) 347 F2d 597, 146 USPQ 47.

In view of the above discussion, Applicants state the instant claims are not anticipated under 35 USC 102(b), or in the alternative obvious under 35 USC §103(a) in view of EP 0 380 343.

In the event the Examiner finds minor issues within this case remain unresolved, the Examiner is respectfully requested to contact the undersigned to arrange for an interview to expedite the disposition of this application.

If any additional fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to our Deposit Account No. 50-0421.

Respectfully submitted,
Solae, LLC

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